Amendments to the Specification:

Please replace paragraph [0011] with the following amended paragraph:

[0011] In accordance with yet another embodiment of the present invention, a method for thickness measurement is provided, comprising the steps of abutting an open faced electromagnetic cavity resonator to a sample having a film thickness, sweeping frequencies in the cavity resonator using a signal generator having a ~~Gunplexer~~ Gunnplexer, detecting a resonant frequency of the cavity resonator using a reflected energy detector, and determining the thickness of the film from a correlation of a shift of the resonant frequency.

Please replace paragraph [0027] with the following amended paragraph:

[0027] When the amplitude meter 8 registers a minimum real power (i.e., power is absorbed by the system), resonance of the cavity resonator 4 has been obtained and the resonant frequency is resolved. The decision and display unit 14 then correlates the shift in frequency to arrive at the corresponding thickness and displays this thickness for the user to read or to an external device, for example, a controller such as a PC. In the exemplary embodiment 10, the decision and display unit 11 is performed by a Hewlett-Packard 8510 network analyzer. The frequencies generated by the exemplary frequency generator 12 is preferably provided by a ~~Gunplexer~~ Gunnplexer.

Please replace paragraph [0033] with the following amended paragraph:

[0033] FIG. 6 is a block diagram of another exemplary measurement system 60. The exemplary system 60 is similar to the system 10 of FIG. 1, but is implemented in a slightly different manner. The exemplary system 60 contains a cavity resonator 64 connected to a power meter 66 via a signal line 61. The cavity resonator 64 is also connected to a frequency generating ~~Gunplexer~~ Gunnplexer 68 via a signal line 61. The ~~Gunplexer~~ Gunnplexer 68 is powered by a DC power supply 72 and controlled by a DC varactor 70, via lines 61.

Please replace paragraph [0034] with the following amended paragraph:

[0034] In operation, the ~~Gunplexer~~ Gunnplexer 68 is energized by the power supply 72 and is frequency controlled by a DC voltage supplied via the varactor 70 to the voltage sensitive frequency (e.g. VCO) input of the ~~Gunplexer~~ Gunnplexer 68. As the input voltage is varied, the ~~Gunplexer's~~ Gunnplexer's output frequency will vary. The varied output frequency is channeled to the cavity resonator 64 and the power dissipated by the cavity resonator 64 is detected by the power meter 66. Based on the power meter's 66 response, the user can adjust the varactor 70 to arrive at the resonant frequency.

Please replace paragraph [0035] with the following amended paragraph:

[0035] A preferred ~~Gunplexer~~ Gunnplexer 68 in the exemplary embodiments of FIGS. 1 and 6 is made by AR2 Communications Products and has a frequency modulated transceiver that incorporates an oscillator and Schottky mixer diodes. The ~~Gunplexer~~ Gunnplexer is sometimes

called a Gunn oscillator or Gunn diode and is preferably capable of operating in the 10 GHz and higher radio frequency band.

Please replace paragraph [0039] with the following amended paragraph:

[0039] Also, by using a ~~Gunplexer~~ Gunnplexer or Gunn diode as a signal source, a smaller packaging of the exemplary systems can be accomplished, since a typical frequency generator is not needed. Another advantage over contemporary systems is that there is no "reference voltage" required for the ~~Gunplexer~~ Gunnplexer and since a variable frequency discrimination is used, a greater versatility can be achieved.